

AMENDMENT UNDER 35 U.S.C. § 1.111
U.S. APPLICATION NO. 09/287,570
ATTORNEY DOCKET NO. Q53866

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. and 2. (cancelled)

3. (currently amended): A mobile communication system ~~as set forth in claim~~

2, comprising:

transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and inserting a first control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and transmission power control for a forward link in said vacant period;

wherein said transmission control means inserts said first control signal at a predetermined time interval; and

wherein ^{predetermined} said time interval of said first control signal inserted during said vacant period is set to be longer than a time interval of said first control signal in a communication mode where transmission data are present in said communication frame which does not include any vacant periods.

4. (currently amended): A mobile communication system ~~as set forth in claim~~

4, comprising:

*time interval
between predeter*

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transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and inserting a first control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and transmission power control for a forward link in said vacant period;

wherein said transmission control means provides a vacant period from a timing immediately after a second control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link.

5. (cancelled)

6. (currently amended): A mobile communication system ~~as set forth in claim~~,
comprising:

transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and inserting a first control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and transmission power control for a forward link in said vacant period;

wherein said transmission control means transmits a ~~third~~ second control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link immediately after end of said vacant period.

7. (cancelled)

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8. (currently amended): A mobile communication system ~~as set forth in claim~~
~~1,~~comprising:

transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and inserting a first control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and transmission power control for a forward link in said vacant period;

wherein said transmission control means provides a vacant period from a timing immediately after a second control signal which includes a transmission power control information for a reverse link.

9. (currently amended): A mobile communication system ~~as set forth in claim~~
~~1,~~comprising:

transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and inserting a first control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and transmission power control for a forward link in said vacant period;

wherein said transmission control means transmits a ^{second} ~~third~~ control signal which includes a transmission power control information for a reverse link immediately after end of said vacant period.

10. (cancelled)

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11. (previously presented): A mobile communication system as set forth in claim 4, wherein said second control signal includes a transmission power control information for reverse link.

12. (currently amended): A mobile communication system as set forth in claim 6, wherein said ~~third~~second control signal includes a transmission power control information for reverse link.

13. through 14. (cancelled)

15. (currently amended): A mobile communication system as set forth in claim 6, wherein said ~~third~~second control signal which includes a transmission power control information for a reverse link.

16. (currently amended): A mobile communication system comprising:
transmission control means for providing a vacant period in which no communication data is present, in one or more of communication frames, from a timing immediately after a ~~second~~first control signal for maintaining a communication quality, and transmitting a ~~third~~second control signal for maintaining the communication quality immediately after end of said vacant period,

each of said ~~second~~first and ~~third~~second control signals being a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link.

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17. (previously presented): A mobile communication system comprising:

transmission control means for providing a vacant period in which no communication data is present, in one or more of communication frames, from a timing immediately after a second control signal for maintaining a communication quality, and transmitting a third control signal for maintaining the communication quality immediately after end of said vacant period,

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said second control signal being a transmission power control for a reverse link and third control signal being a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link.

18. (cancelled)

19. (currently amended): A mobile communication system ~~as set forth in claim~~
±,comprising:

transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and inserting a first control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and transmission power control for a forward link in said vacant period;

wherein a communication mode is switched into a mode where said vacant period is provided at a predetermined time interval.


20. (currently amended): A mobile communication system ~~as set forth in claim~~
±,comprising:

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transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and inserting a first control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and transmission power control for a forward link in said vacant period;

wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice from said base station to said mobile station.

21. (currently amended): A mobile communication system ~~as set forth in claim~~

 1, comprising:

transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and inserting a first control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and transmission power control for a forward link in said vacant period;

wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice to said mobile station depending upon a link quality condition measured in said base station.

22. (currently amended): A mobile communication system ~~as set forth in claim~~

1, comprising:

transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and inserting a first control signal

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which includes a pilot signal to be used for at least one of demodulation of the communication data and transmission power control for a forward link in said vacant period;

wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice to said mobile station depending upon a congestion condition measured in said base station.

23. (currently amended): A mobile communication system ~~as set forth in claim~~
1, comprising:

transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and inserting a first control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and transmission power control for a forward link in said vacant period;

wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice from said mobile station to said base station.

24. (currently amended): A mobile communication system ~~as set forth in claim~~
1, comprising:

transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and inserting a first control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and transmission power control for a forward link in said vacant period;

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wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice to said base station depending upon a link quality condition measured in said mobile station.

25. and 26. (cancelled)

27. (currently amended): A communication control method ~~as set forth in claim~~

26, comprising:

a step of providing a vacant period, in which no communication data is present, in one or more of communication frames; and

a step of inserting a first control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link in said vacant period, for transmission;

wherein said first control signal is inserted at a predetermined time interval; and

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5/24/04 wherein said ^{predetermined} time interval of said first control signal inserted during said vacant period is set to be longer than a time interval of said first control signal in a communication mode where transmission data are present in said communication frame which does not include any vacant periods.

28. (currently amended): A communication control method ~~as set forth in claim~~

25, comprising:

a step of providing a vacant period, in which no communication data is present, in one or more of communication frames; and

a step of inserting a first control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link in said vacant period, for transmission;

wherein in said step of providing the vacant period, said vacant period is provided immediately after a second control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link.

29. (cancelled)

30. (currently amended): A communication control method ~~as set forth in claim 25,~~
~~further~~ comprising:

a step of providing a vacant period, in which no communication data is present, in one or more of communication frames;

a step of inserting a first control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link in said vacant period, for transmission; and

a step of transmitting a ~~third~~ second control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and transmission power control for a forward link.

31. (cancelled)

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32. (currently amended): A communication control method ~~as set forth in claim~~
~~25, comprising:~~

a step of providing a vacant period, in which no communication data is present, in one or more of communication frames; and

a step of inserting a first control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link in said vacant period, for transmission;

wherein said step of providing the vacant period, said vacant period is provided immediately after a second control signal which includes a transmission power control information for reverse link.

33. (currently amended): A communication control method ~~as set forth in claim 25, further comprising:~~

a step of providing a vacant period, in which no communication data is present, in one or more of communication frames;

a step of inserting a first control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link in said vacant period, for transmission; and

a step of transmitting a ~~third~~-second control signal which includes a transmission power control information for reverse link immediately after end of said vacant period.

34. (cancelled)

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35. (previously presented): A communication control method as set forth in claim 28, wherein said second control signal includes a transmission power control information for reverse link.

36. (currently amended): A communication control method as set forth in claim 30, wherein said ~~third~~second control signal includes a transmission power control information for reverse link.

37. through 38. (cancelled)

39. (currently amended): A communication control method as set forth in claim 30, wherein said ~~third~~second control signal includes a transmission power control information for reverse link.

40. (currently amended): A communication control method comprising:
a step of providing a vacant period in which no communication data is present, in one or more of communication frames, from a timing immediately after a ~~second~~first control signal for maintaining a communication quality, and transmitting a ~~third~~second control signal for maintaining the communication quality immediately after end of said vacant period,

each of said ~~second~~first and second~~third~~ control signals being a pilot signal to be used for demodulation of the communication data or a transmission power control for a forward link.

41. (currently amended): A communication control method comprising:
a step of providing a vacant period in which no communication data is present, in one or more of communication frames, from a timing immediately after a first~~second~~ control signal for

maintaining a communication quality, and transmitting a second ~~third~~ control signal for
maintaining the communication quality immediately after end of said vacant period,

said ~~second~~ first control signal being a transmission power control for a reverse link and
~~third~~ second control signal being a pilot signal to be used for demodulation of the
communication data or a transmission power control for a forward link.

42. (cancelled)

43. (currently amended): A communication control method ~~as set forth in claim~~

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25, comprising:

a step of providing a vacant period, in which no communication data is present, in one or
more of communication frames; and

a step of inserting a first control signal which includes a pilot signal to be used for at least
one of demodulation of the communication data and a transmission power control for a forward
link in said vacant period, for transmission;

wherein a communication mode is switched into a mode where said vacant period is
provided at a predetermined time interval.

44. (currently amended): A communication control method ~~as set forth in claim~~

25, comprising:

a step of providing a vacant period, in which no communication data is present, in one or
more of communication frames; and

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a step of inserting a first control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link in said vacant period, for transmission;

wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice from said base station to said mobile station.

45. (currently amended): A communication control method ~~as set forth in claim~~
25, comprising:

a step of providing a vacant period, in which no communication data is present, in one or more of communication frames; and

a step of inserting a first control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link in said vacant period, for transmission;

wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice to said mobile station depending upon a link quality condition measured in said base station.

46. (currently amended): A communication control method ~~as set forth in claim~~
25, comprising:

a step of providing a vacant period, in which no communication data is present, in one or more of communication frames; and

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a step of inserting a first control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link in said vacant period, for transmission;

wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice to said mobile station depending upon a congestion condition measured in said base station.

47. (currently amended): A communication control method ~~as set forth in claim~~
25, comprising:

a step of providing a vacant period, in which no communication data is present, in one or more of communication frames; and

a step of inserting a first control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link in said vacant period, for transmission;

wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice from said mobile station to said base station.

48. (currently amended): A communication control method ~~as set forth in claim~~
25, comprising:

a step of providing a vacant period, in which no communication data is present, in one or more of communication frames; and

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a step of inserting a first control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link in said vacant period, for transmission;

wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice to said base station depending upon a link quality condition measured in said mobile station.

49. and 50. (cancelled)

51. (currently amended): A base station ~~as set forth in claim 50~~, in a mobile communication system, comprising:

transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and inserting a first control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link in said vacant period;


wherein said transmission control means inserts said first control signal at a predetermined time interval; and

^{predetermined}
wherein said ^{predetermined} time interval of said first control signal inserted during said vacant period is set to be longer than a time interval of said first control signal in a communication mode where transmission data are present in said communication frame which does not include any vacant periods.

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52. (currently amended): A base station ~~as set forth in claim 49~~, in a mobile communication system, comprising:

transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and inserting a first control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link in said vacant period;

 wherein said transmission control means provides a vacant period from a timing immediately after a second control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link.

53. (cancelled)

54. (currently amended): A base station ~~as set forth in claim 49~~, in a mobile communication system, comprising:

transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and inserting a first control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link in said vacant period;

wherein said transmission control means transmits a ~~third~~ second control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link immediately after end of said vacant period.

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55. (cancelled)

56. (currently amended): A base station ~~as set forth in claim 49~~, in a mobile communication system, comprising:

transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and inserting a first control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link in said vacant period;

said transmission control means provides a vacant period from a timing immediately after a second control signal which includes a transmission power control information for reverse link.

57. (currently amended): A base station ~~as set forth in claim 49~~, in a mobile communication system, comprising:

transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and inserting a first control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link in said vacant period;

wherein said transmission control means transmits a ~~third~~ second control signal which includes a transmission power control information for reverse link immediately after end of said vacant period.

58. (cancelled)

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59. (previously presented): A base station as set forth in claim 52, wherein said second control signal includes a transmission power control information for reverse link.

60. (original): A base station as set forth in claim 54, wherein said third control signal includes a transmission power control information for reverse link.

61. through 63. (cancelled)

64. (currently amended): A base station in a mobile communication system,

comprising:

transmission control means for providing a vacant period in which no communication data is present, in one or more of communication frames, from a timing immediately after a ~~second~~first control signal for maintaining a communication quality, and transmitting a ~~third~~second control signal for maintaining the communication quality immediately after end of said vacant period,

each of said ~~second~~first and ~~third~~second control signals being a pilot signal to be used for demodulation of the communication data or a transmission power control for a forward link.

65. (currently amended): A base station in a mobile communication system, comprising:

transmission control means for providing a vacant period in which no communication data is present, in one or more of communication frames, from a timing immediately after a ~~second~~first control signal for maintaining a communication quality, and transmitting a ~~third~~

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second control signal for maintaining the communication quality immediately after end of said vacant period,

said ~~second~~ first control signal being a transmission power control for a reverse link and ~~third~~ second control signal being a pilot signal to be used for demodulation of the communication data or a transmission power control for a forward link.

66. (cancelled)

67. (currently amended): A base station as ~~set forth in claim 49~~, in a mobile communication system, comprising:

transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and inserting a first control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link in said vacant period;

wherein a communication mode is switched into a mode where said vacant period is provided at a predetermined time interval.

68. (currently amended): A base station as ~~set forth in claim 49~~, in a mobile communication system, comprising:

transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and inserting a first control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link in said vacant period;

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wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice from said base station to said mobile station.

69. (currently amended): A base station ~~as set forth in claim 49~~, in a mobile communication system, comprising:
transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and inserting a first control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link in said vacant period;

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wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice to said mobile station depending upon a link quality condition measured in said base station.

70. (currently amended): A base station ~~as set forth in claim 49~~, in a mobile communication system, comprising:
transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and inserting a first control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link in said vacant period;

wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice to said mobile station depending upon a congestion condition measured in said base station.

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71. (currently amended): A base station as set forth in claim 49, in a mobile communication system, comprising:

transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and inserting a first control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link in said vacant period;

wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice from said mobile station to said base station.

72. and 73. (cancelled)

74. (previously presented): A mobile station in a mobile communication system, comprising:

means for receiving a first control signal for maintaining a communication quality transmitted in a vacant period in which no communication data is present, in one or more of communication frames and controlling a transmission power in a reverse link according to said first control signal,

wherein said first control signal includes a transmission power control information for reverse link.

75. (currently amended): A mobile station in a mobile communication system, comprising:

quality measuring means for receiving a ~~second~~-control signal for maintaining a communication quality transmitted at a timing immediately before a vacant period in which no communication data is present, in one or more of communication frames and measuring a reception quality on the basis of said ~~second~~-control signal; and

transmitting means for generating and transmitting a transmission power control information for a forward link according to said reception quality,

wherein said ~~second~~-control signal includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link.

76. (currently amended): A mobile station in a mobile communication system, comprising:

demodulation means for receiving a ~~second~~-control signal for maintaining a communication quality transmitted at a timing immediately before a vacant period in which no communication data is present, in one or more of communication frames and demodulating a communication data using said ~~second~~-control signal,

wherein said ~~second~~-control signal includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link.

77. (currently amended): A mobile station in a mobile communication system, comprising:

means for receiving a ~~second~~-control signal for maintaining a communication quality transmitted at a timing immediately before a vacant period in which no communication data is

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present, in one or more of communication frames and controlling a transmission power in a reverse link on the basis of said ~~second~~ control signal,

wherein said ~~second~~ control signal includes a transmission power control information for reverse link.

78. (currently amended): A mobile station in a mobile communication system, comprising:

quality measuring means for receiving a ~~second~~first control signal for maintaining a communication quality transmitted at a timing immediately before a vacant period in which no communication data is present, in one or more of communication frames and receiving a ~~third~~ second control signal for maintaining the communication quality transmitted at a timing immediately after said vacant period, and measuring a reception quality on the basis of said ~~second~~first or ~~third~~second control signal; and

transmitting means for generating and transmitting a transmission power control information for a forward link according to said reception quality,

wherein said ~~second~~first control signal includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link.

79. (currently amended): A mobile station in a mobile communication system, comprising:

demodulation means for receiving a ~~second~~first control signal for maintaining a communication quality transmitted at a timing immediately before a vacant period in which no

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communication data is present, in one or more of communication frames and receiving a second ~~third~~ control signal for maintaining the communication quality transmitted at a timing immediately after said vacant period, and demodulating a communication data using said first ~~second~~ or second ~~third~~ control signal,

wherein said first ~~second~~ control signal includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link.

80. (currently amended): A mobile station in a mobile communication system, comprising:

quality measuring means for receiving a ~~second~~ first control signal for maintaining a communication quality transmitted at a timing immediately before a vacant period in which no communication data is present, in one or more of communication frames and receiving a ~~third~~ second control signal for maintaining the communication quality transmitted at a timing immediately after said vacant period, and measuring a reception quality on the basis of said ~~third~~ second control signal;

transmitting means for generating and transmitting a transmission power control information for a forward link according to said reception quality; and

means for controlling a transmission power in a reverse link on the basis of said ~~second~~ first control signal,

wherein said ~~third~~ second control signal includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link.

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81. (currently amended): A mobile station in a mobile communication system, comprising:

demodulation means for receiving a ~~second~~first control signal for maintaining a communication quality transmitted at a timing immediately before a vacant period in which no communication data is present, in one or more of communication frames and receiving a ~~third~~second control signal for maintaining the communication quality transmitted at a timing immediately after said vacant period, and demodulating a communication data using said ~~third~~second control signal; and

means for controlling a transmission power in a reverse link on the basis of said ~~second~~first control signal,

wherein said ~~third~~second control signal includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link.

82. (currently amended): A mobile station in a mobile communication system, comprising:

demodulation means for receiving a first~~second~~ control signal for maintaining a communication quality transmitted at a timing immediately before a vacant period in which no communication data is present, in one or more of communication frames and receiving a second~~third~~ control signal for maintaining the communication quality transmitted at a timing immediately after said vacant period, and demodulating a communication data using said second~~third~~ control signal;

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quality measuring means for measuring a reception quality on the basis of said second
~~third~~ control signal;

transmitting means for generating and transmitting a transmission power control
information in a forward link according to the reception quality; and

means for controlling a transmission power in a reverse link on the basis of said first
~~second~~ control signal,

wherein said second ~~third~~ control signal includes a pilot signal to be used for at least one
of demodulation of the communication data and a transmission power control for a forward link.

83. through 87. (cancelled)

88. (currently amended): A mobile station ~~as set forth in claim 72,~~ in a mobile
communication system, comprising:

quality measuring means for receiving a first control signal for maintaining a
communication quality transmitted in a vacant period in which no communication data is
present, in one or more of communication frames and measuring a reception quality on the basis
of said first control signal; and

transmitting means for generating and transmitting power control information for a
forward link according to said reception quality, wherein said first control signal includes a pilot
signal to be used for at least one of a demodulation of the communication data and a
transmission power control for a forward link;

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wherein said first control signal includes a pilot signal to be used for a transmission power control for reverse link.

89. through 91. (cancelled)

92. (currently amended): A mobile station ~~as set forth in claim 72,~~ in a mobile communication system, comprising:
quality measuring means for receiving a first control signal for maintaining a communication quality transmitted in a vacant period in which no communication data is present, in one or more of communication frames and measuring a reception quality on the basis of said first control signal; and
transmitting means for generating and transmitting power control information for a forward link according to said reception quality, wherein said first control signal includes a pilot signal to be used for at least one of a demodulation of the communication data and a transmission power control for a forward link;

wherein a communication mode is switched into a mode where said vacant period is provided at a predetermined time interval.

93. (currently amended): A mobile station ~~as set forth in claim 72,~~ in a mobile communication system, comprising:
quality measuring means for receiving a first control signal for maintaining a communication quality transmitted in a vacant period in which no communication data is

present, in one or more of communication frames and measuring a reception quality on the basis of said first control signal; and

transmitting means for generating and transmitting power control information for a forward link according to said reception quality, wherein said first control signal includes a pilot signal to be used for at least one of a demodulation of the communication data and a transmission power control for a forward link;

wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice from said base station to said mobile station.

94. (currently amended): A mobile station ~~as set forth in claim 72~~, in a mobile communication system, comprising:

quality measuring means for receiving a first control signal for maintaining a communication quality transmitted in a vacant period in which no communication data is present, in one or more of communication frames and measuring a reception quality on the basis of said first control signal; and

transmitting means for generating and transmitting power control information for a forward link according to said reception quality, wherein said first control signal includes a pilot signal to be used for at least one of a demodulation of the communication data and a transmission power control for a forward link;

wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice from said mobile station to said base station.

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95. (currently amended): A mobile station ~~as set forth in claim 72~~, in a mobile communication system, comprising:

quality measuring means for receiving a first control signal for maintaining a communication quality transmitted in a vacant period in which no communication data is present, in one or more of communication frames and measuring a reception quality on the basis of said first control signal; and

transmitting means for generating and transmitting power control information for a forward link according to said reception quality, wherein said first control signal includes a pilot signal to be used for at least one of a demodulation of the communication data and a transmission power control for a forward link;

wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice to said base station depending upon a link quality condition measured in said mobile station.

96. and 97. (cancelled)

98. (currently amended): A mobile communication system ~~as set forth in claim 97~~, comprising:

transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and inserting a first control signal which includes a transmission power control information for reverse link in said vacant period;

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wherein said transmission control means inserts said first control signal at a
predetermined time interval; and

sk
5/21/07 ^{*predetermined*} wherein said time interval of said first control signal inserted during said vacant period is
set to be longer than a time interval of said first control signal in a communication mode where
transmission data are present in said communication frame which does not include any vacant
periods.

al
ant 99. (currently amended): A mobile communication system ~~as set forth in claim~~

96, comprising:

transmission control means for providing a vacant period, in which no communication
data is present, in one or more of communication frames, and inserting a first control signal
which includes a transmission power control information for reverse link in said vacant period;

wherein said transmission control means provides a vacant period from a timing
immediately after a second control signal which includes a transmission power control
information for a reverse link.

100. (currently amended): A mobile communication system ~~as set forth in claim~~

96, comprising:

transmission control means for providing a vacant period, in which no communication
data is present, in one or more of communication frames, and inserting a first control signal
which includes a transmission power control information for reverse link in said vacant period;

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wherein said transmission control means transmits a ~~third~~ second control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and transmission power control for a forward link immediately after end of said vacant period.

101. (currently amended): A mobile communication system ~~as set forth in claim~~
96, comprising:

transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and inserting a first control signal which includes a transmission power control information for reverse link in said vacant period;

wherein said transmission control means provides a vacant period from a timing immediately after a second control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link.

102. (currently amended): A mobile communication system ~~as set forth in claim~~
96, comprising:

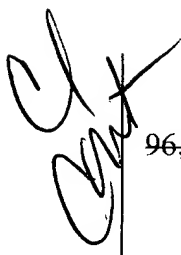
transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and inserting a first control signal which includes a transmission power control information for reverse link in said vacant period;

wherein said transmission control means transmits a ~~third~~ second control signal which includes a transmission power control information for a reverse link immediately after end of said vacant period.

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103. (previously presented): A mobile communication system as set forth in claim 99, wherein said second control signal includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link.

104. (currently amended): A mobile communication system as set forth in claim 100, wherein said ~~third~~ second control signal includes a transmission power control information for reverse link.

 105. (currently amended): A mobile communication system ~~as set forth in claim~~
96, comprising:

transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and inserting a first control signal which includes a transmission power control information for reverse link in said vacant period;

wherein said transmission control means provides a vacant period from a timing immediately after a second control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link, and transmits a third control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link immediately after end of said vacant period.

106. and 107. (cancelled)

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108. (currently amended): A mobile communication system ~~as set forth in claim~~
~~96, comprising:~~
transmission control means for providing a vacant period, in which no communication
data is present, in one or more of communication frames, and inserting a first control signal
which includes a transmission power control information for reverse link in said vacant period;

wherein a communication mode is switched into a mode where said vacant period is
provided at a predetermined time interval.

109. (currently amended): A mobile communication system ~~as set forth in claim~~
~~96, comprising:~~
transmission control means for providing a vacant period, in which no communication
data is present, in one or more of communication frames, and inserting a first control signal
which includes a transmission power control information for reverse link in said vacant period;

wherein a communication mode is switched into a mode where said vacant period is
provided by issuing a notice from said base station to said mobile station.

110. (currently amended): A mobile communication system ~~as set forth in claim~~
~~96, comprising:~~
transmission control means for providing a vacant period, in which no communication
data is present, in one or more of communication frames, and inserting a first control signal
which includes a transmission power control information for reverse link in said vacant period;

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wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice to said mobile station depending upon a link quality condition measured in said base station.

111. (currently amended): A mobile communication system ~~as set forth in claim~~
96, comprising:
transmission control means for providing a vacant period, in which no communication
data is present, in one or more of communication frames, and inserting a first control signal
which includes a transmission power control information for reverse link in said vacant period;

wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice to said mobile station depending upon a congestion condition measured in said base station.

112. (currently amended): A mobile communication system ~~as set forth in claim~~
96, comprising:
transmission control means for providing a vacant period, in which no communication
data is present, in one or more of communication frames, and inserting a first control signal
which includes a transmission power control information for reverse link in said vacant period;

wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice from said mobile station to said base station.

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113. (currently amended): A mobile communication system as ~~set forth in claim~~
~~96, comprising:~~

transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and inserting a first control signal which includes a transmission power control information for reverse link in said vacant period;

wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice to said base station depending upon a link quality condition measured in said mobile station.

114. and 115. (cancelled)

116. (currently amended): A communication control method as ~~set forth in claim~~
~~115, comprising:~~

providing a vacant period , in which no communication data is present, in one or more of communication frames; and

inserting a first control signal which includes a transmission power control information for reverse link in said vacant period, for transmission;

wherein said first control signal is inserted at a predetermined time interval; and

wherein said ^{predetermined} time interval of said first control signal inserted during said vacant period is set to be longer than a time interval of said first control signal in a communication mode where

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transmission data are present in said communication frame which does not include any vacant periods.

117. (currently amended): A communication control method ~~as set forth in claim 114~~, comprising:

providing a vacant period , in which no communication data is present, in one or more of communication frames; and

inserting a first control signal which includes a transmission power control information for reverse link in said vacant period, for transmission;

wherein in said providing the vacant period, said vacant period is provided immediately after a second control signal which includes a transmission power control information for a reverse link.

118. (currently amended): A communication control method ~~as set forth in claim 114~~, further comprising:

providing a vacant period , in which no communication data is present, in one or more of communication frames;

inserting a first control signal which includes a transmission power control information for reverse link in said vacant period, for transmission; and

transmitting a ^{second} ~~third~~ control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link immediately after end of said vacant period.

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119. (currently amended): A communication control method ~~as set forth in claim~~
~~114~~, comprising:

providing a vacant period, in which no communication data is present, in one or more of
communication frames; and

inserting a first control signal which includes a transmission power control information
for reverse link in said vacant period, for transmission;

wherein in said providing the vacant period, said vacant period is provided immediately
after a second control signal which includes a pilot signal to be used for at least one of
demodulation of the communication data and a transmission power control for a forward link.

120. (currently amended): A communication control method ~~as set forth in claim 114~~,
~~further~~ comprising:

providing a vacant period, in which no communication data is present, in one or more of
communication frames;

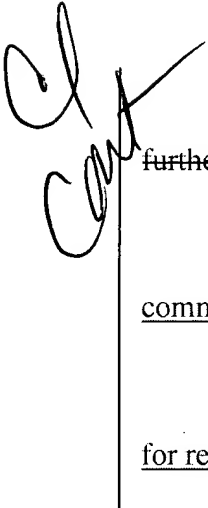
inserting a first control signal which includes a transmission power control information
for reverse link in said vacant period, for transmission; and

transmitting a ^{second} ~~third~~ control signal which includes a transmission power control
information for a reverse link immediately after end of said vacant period.

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121. (previously presented): A communication control method as set forth in claim 117, wherein said second control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link.

122. (previously presented): A communication control method as set forth in claim 118, wherein said third control signal includes a transmission power control information for reverse link.

 123. (currently amended): A communication control method ~~as set forth in claim 114,~~
~~further comprising:~~

providing a vacant period, in which no communication data is present, in one or more of communication frames;

inserting a first control signal which includes a transmission power control information for reverse link in said vacant period, for transmission; and

transmitting a third control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link immediately after end of said vacant period,

wherein in said providing the vacant period, said vacant period is provided immediately after a second control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link.

124. and 125. (cancelled)

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126. (currently amended): A communication control method ~~as set forth in claim~~

~~114, comprising:~~

providing a vacant period , in which no communication data is present, in one or more of
communication frames; and

inserting a first control signal which includes a transmission power control information
for reverse link in said vacant period, for transmission;

wherein a communication mode is switched into a mode where said vacant period is
provided at a predetermined time interval.

127. (currently amended): A communication control method ~~as set forth in claim~~

~~114, comprising:~~

providing a vacant period , in which no communication data is present, in one or more of
communication frames; and

inserting a first control signal which includes a transmission power control information
for reverse link in said vacant period, for transmission;

wherein a communication mode is switched into a mode where said vacant period is
provided by issuing a notice from said base station to said mobile station.

128. (currently amended): A communication control method ~~as set forth in claim~~

~~114, comprising:~~

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providing a vacant period , in which no communication data is present, in one or more of communication frames; and

inserting a first control signal which includes a transmission power control information for reverse link in said vacant period, for transmission;

wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice to said mobile station depending upon a link quality condition measured in said base station.

129. (currently amended): A communication control method ~~as set forth in claim 114,~~ comprising:

providing a vacant period , in which no communication data is present, in one or more of communication frames; and

inserting a first control signal which includes a transmission power control information for reverse link in said vacant period, for transmission;

wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice to said mobile station depending upon a congestion condition measured in said base station.

130. (currently amended): A communication control method ~~as set forth in claim 114,~~ comprising:

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providing a vacant period , in which no communication data is present, in one or more of communication frames; and

inserting a first control signal which includes a transmission power control information for reverse link in said vacant period, for transmission;

wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice from said mobile station to said base station.

131. (currently amended): A communication control method ~~as set forth in claim 114,~~ comprising:

providing a vacant period , in which no communication data is present, in one or more of communication frames; and

inserting a first control signal which includes a transmission power control information for reverse link in said vacant period, for transmission;

wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice to said base station depending upon a link quality condition measured in said mobile station.

132. and 133. (cancelled)

134. (currently amended): A base station ~~as set forth in claim 133,~~ in a mobile communication system, comprising:

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transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and inserting a first control signal which includes a transmission power control information for reverse link in said vacant period;

wherein said transmission control means inserts said first control signal at a predetermined time interval; and

5/24/04 ^{predetermined} wherein said time interval of said first control signal inserted during said vacant period is set to be longer than a time interval of said first control signal in a communication mode where transmission data are present in said communication frame which does not include any vacant periods.

135. (currently amended): A base station ~~as set forth in claim 132,~~ in a mobile communication system, comprising:

transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and inserting a first control signal which includes a transmission power control information for reverse link in said vacant period;

wherein said transmission control means provides a vacant period from a timing immediately after a second control signal which includes a transmission power control information for a reverse link.

136. (currently amended): A base station ~~as set forth in claim 132,~~ in a mobile communication system, comprising:

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transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and inserting a first control signal which includes a transmission power control information for reverse link in said vacant period;

wherein said transmission control means transmits a third control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and transmission power control for a forward link immediately after end of said vacant period.

137. (currently amended): A base station ~~as set forth in claim 132,~~ in a mobile communication system, comprising:

transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and inserting a first control signal which includes a transmission power control information for reverse link in said vacant period;

wherein said transmission control means provides said vacant period from a timing immediately after a second control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link.

138. (currently amended): A base station ~~as set forth in claim 132,~~ in a mobile communication system, comprising:

transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and inserting a first control signal which includes a transmission power control information for reverse link in said vacant period;

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wherein said transmission control means transmits a third control signal which includes a transmission power control information for a reverse link immediately after end of said vacant period.

139. (previously presented): A base station as set forth in claim 135, wherein said second control signal includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link.

140. (previously presented): A base station as set forth in claim 136, wherein said third control signal includes a transmission power control information for reverse link.

141. (currently amended): A base station ~~as set forth in claim 132~~, in a mobile communication system, comprising:

transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and inserting a first control signal which includes a transmission power control information for reverse link in said vacant period;

wherein said transmission control means provides said vacant period from a timing immediately after a second control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link, and transmits a third control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link immediately after end of said vacant period.

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142. and 143. (cancelled)

144. (previously presented): A base station as set forth in claim 132, wherein a communication mode is switched into a mode where said vacant period is provided at a predetermined time interval.

145. (previously presented): A base station as set forth in claim 132, wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice from said base station to said mobile station.

146. (previously presented): A base station as set forth in claim 132, wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice to said mobile station depending upon a link quality condition measured in said base station.

147. (previously presented): A base station as set forth in claim 132, wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice to said mobile station depending upon a congestion condition measured in said base station.

148. (previously presented): A base station as set forth in claim 132, wherein a communication mode is switched into a mode where said vacant period is provided by issuing a notice from said mobile station to said base station.

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149. (currently amended): A mobile station in a mobile communication system, comprising:

quality measuring means for receiving a ~~second~~first control signal for maintaining a communication quality transmitted at a timing immediately before a vacant period in which no communication data is present, in one or more of communication frames and receiving a ~~third~~second control signal for maintaining the communication quality transmitted at a timing immediately after said vacant period, and measuring a reception quality on the basis of said ~~second~~first or ~~third~~second control signal; and

transmitting means for generating and transmitting a transmission power control information for a forward link according to said reception quality,

wherein said ~~third~~second control signal includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link.

150. (currently amended): A mobile station in a mobile communication system, comprising:

demodulation means for receiving a ~~second~~first control signal for maintaining a communication quality transmitted at a timing immediately before a vacant period in which no communication data is present, in one or more of communication frames and receiving a ~~third~~second control signal for maintaining the communication quality transmitted at a timing immediately after said vacant period, and demodulating a communication data using said ~~second~~first or second ~~third~~ control signal,

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wherein said ~~third~~second control signal includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link.

151. (currently amended): A mobile station in a mobile communication system, comprising:

quality measuring means for receiving a ~~second~~first control signal for maintaining a communication quality transmitted at a timing immediately before a vacant period in which no communication data is present, in one or more of communication frames and receiving a ~~third~~second control signal for maintaining the communication quality transmitted at a timing immediately after said vacant period, and measuring a reception quality on the basis of said second ~~third~~ control signal;

transmitting means for generating and transmitting a transmission power control information for a forward link according to said reception quality; and

means for controlling a transmission power in a reverse link on the basis of said ~~second~~first control signal,

wherein said ~~second~~first control signal includes a transmission power control information for reverse link.

152. (currently amended): A mobile station in a mobile communication system, comprising:

demodulation means for receiving a ~~second~~first control signal for maintaining a communication quality transmitted at a timing immediately before a vacant period in which no

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communication data is present, in one or more of communication frames and receiving a second
~~third~~ control signal for maintaining the communication quality transmitted at a timing
immediately after said vacant period, and demodulating a communication data using said second
~~third~~ control signal; and

means for controlling a transmission power in a reverse link on the basis of said first
~~second~~ control signal,

wherein said first ~~second~~ control signal includes a transmission power control
information for reverse link.

153. (currently amended): A mobile station in a mobile communication system,
comprising:

demodulation means for receiving a first ~~second~~ control signal for maintaining a
communication quality transmitted at a timing immediately before a vacant period in which no
communication data is present, in one or more of communication frames and receiving a second
~~third~~ control signal for maintaining the communication quality transmitted at a timing
immediately after said vacant period, and demodulating a communication data using said second
~~third~~ control signal;

quality measuring means for measuring a reception quality on the basis of said second
~~third~~ control signal;

transmitting means for generating and transmitting a transmission power control
information in a forward link according to the reception quality; and

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means for controlling a transmission power in a reverse link on the basis of said first
~~second~~ control signal,

wherein said first ~~second~~ control signal includes a transmission power control
information for reverse link.

154. (currently amended): A mobile station in a mobile communication systems set
forth in claim 149, further comprising:

receiving means for receiving a third ~~first~~ control signal which includes a transmission
power control information for a reverse link, and

controlling means for controlling a transmission power in said reverse link on the basis of
said third ~~first~~ control signal.

155. (currently amended): A mobile station in a mobile communication system as set
forth in claim 150, further comprising:

receiving means for receiving a third ~~first~~ control signal which includes a transmission
power control information for a reverse link, and

controlling means for controlling a transmission power in said reverse link on the basis of
said third ~~first~~ control signal.

156. (currently amended): A mobile communication system comprising:
transmission control means for providing a vacant period, in which no communication
data is present, in one or more of communication frames from a timing immediately after a

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~~second~~ control signal which include a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link.

157. (currently amended): A mobile communication system comprising:

transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and transmitting a ~~third~~ control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link immediately after end of said vacant period.

158. (currently amended): A mobile communication system comprising:

transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames from a timing immediately after a first ~~second~~ control signal which include a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link, and transmitting a second ~~third~~ control signal which include a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link immediately after end of said vacant period.

159. (currently amended): A base station in a mobile communication system comprising:

transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames from a timing immediately after a

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~~second~~ control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link.

160. (currently amended): A base station in a mobile communication system comprising:

transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames, and transmitting a ~~third~~ control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link immediately after end of said vacant period.

161. (currently amended): A base station in a mobile communication system comprising:

transmission control means for providing a vacant period, in which no communication data is present, in one or more of communication frames from a timing immediately after a first ~~second~~ control signal which include a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link, and transmitting a second ~~third~~ control signal which include a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link immediately after end of said vacant period.

162. (previously presented): A mobile communication system including a base station and at least one of mobile stations, said base station comprising:

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a transmission control unit provides a vacant period, in which no communication data is present, in one or more communication frames of communication channel of forward link from said base station to at least one of said mobile stations by compressing data of said communication frame;

an inserting unit inserts a first control signal which includes a transmission power information for reverse link in said vacant period.

163. (currently amended): A mobile communication system as set forth in claim 162, wherein said transmission control unit transmits a ~~third~~ second control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and transmission power control for a forward link immediately after end of said vacant period.

164. (previously presented): A mobile communication system as set forth in claim 162, wherein said transmission control unit provides a vacant period from a timing immediately after a second control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for s forward link.

165. (previously presented): A mobile communication system as set forth in claim 162, wherein said transmission control unit provides a vacant period from a timing immediately after a second control signal which includes a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link, and transmits a third control signal which includes a pilot signal to be used for at least one of demodulation of

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the communication data and transmission power control for a forward link immediately after end of said vacant period.

166. (currently amended): A mobile communication system including a base station and at least one of mobile stations, said base station comprising:

transmission control unit provides a vacant period, in which no communication data is present, in one or more communication frames of communication channel of forward link from said base station to at least one of said mobile stations by compressing data of said communication frame, and transmitting a ~~third~~ control ~~signs~~ signal which includes a pilot signal to be used for at least one of demodulation of the communication data and transmission power control for a forward link after end of said vacant period.

167. (currently amended): A mobile communication system including a base station and at least one of mobile stations, said base station comprising:

transmission control unit provides a vacant period, in which no communication data is present, in one or more communication frames of communication channel of forward link from said base station to at least one of said mobile stations by compressing data of said communication frame, wherein said transmission control unit provides said vacant period from a timing immediately after a ~~second~~ control signal which include a pilot signal to be used for at least one of demodulation of the communication data and a transmission power control for a forward link.